

WHAT IS CLAIMED IS

1. A method for communicating in a distributed computing environment, comprising:

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receiving a first message in a data representation language from a first source to be sent to a destination, wherein the first message is one of an ordered set of messages receivable by the destination and described in a data representation language schema;

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verifying a sequence of the first message in the ordered set of messages receivable by the destination according to the data representation language schema;

15 sending the first message to the destination if the first message is in sequence; and

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not sending the first message to the destination if the first message is not in sequence.

2. The method as recited in claim 1, further comprising notifying the first source if 20 the first message is not in sequence.

3. The method as recited in claim 2, further comprising the first source resending the first message in sequence in response to said notifying.

25 4. The method as recited in claim 1, wherein said receiving a first message, said verifying a sequence, and said sending the first message are performed by a message conductor configured to send messages in sequence to the destination according to the data representation language schema.

5. The method as recited in claim 4, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment.

5 6. The method as recited in claim 5, wherein a client device comprises the message conductor and the client.

7. The method as recited in claim 6, further comprising the service providing the message conductor to the client device.

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8. The method as recited in claim 5, wherein a service device comprises the message conductor and the service.

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9. The method as recited in claim 1, wherein said receiving a first message and said verifying a sequence are performed by a message conductor configured to verify the sequence of messages according to the data representation language schema, and wherein said sending the first message is performed by a message endpoint configured to send messages to the destination.

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10. The method as recited in claim 9, further comprising the message conductor sending the first message to the message endpoint if the first message is in sequence.

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11. The method as recited in claim 9, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment.

12. The method as recited in claim 11, further comprising the service providing the message conductor to the client.

13. The method as recited in claim 1, wherein the destination is a service accessible through the distributed computing environment and configured to provide resources to clients in the distributed computing environment in response to data representation language messages received from the clients, and wherein the first source is a first client 5 of the service in the distributed computing environment.

14. The method as recited in claim 1, further comprising:

receiving a plurality of messages in the data representation language from a 10 plurality of sources to be sent to the destination, wherein the plurality of messages are each from the ordered set of messages receivable by the destination and described in the data representation language schema;

15 verifying a sequence of the plurality of messages in the ordered set of messages receivable by the destination according to the data representation language schema;

20 sending a second message of the plurality of message to the destination if the second message is in sequence; and

not sending the second message to the destination if the second message is not in sequence.

15. The method as recited in claim 1, wherein the source is a client in the distributed 25 computing environment and the destination is a service accessible through the distributed computing environment, the method further comprising:

30 receiving the data representation language schema, wherein the data representation language schema defines a message sequence interface for accessing the service; and

generating a message conductor for the client according to the data representation language schema, wherein said receiving a first message and said verifying a sequence are performed by the message conductor for the client.

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16. The method as recited in claim 15, further comprising receiving the data representation language schema of the service in a service advertisement of the service.

17. The method as recited in claim 1, wherein the data representation language is
10 eXtensible Markup Language (XML).

18. A method for communicating in a distributed computing environment, comprising:

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receiving a plurality of request messages in a data representation language from a first source to be sent to a destination, wherein the plurality of request messages are an ordered set of messages receivable by the destination and described in a data representation language schema;

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verifying a sequence of the plurality of request messages receivable by the destination according to the data representation language schema; and

sending the plurality of request messages in sequence to the destination.

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19. The method as recited in claim 18, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment, wherein the plurality of request messages include information requesting the service to perform one or more functions on behalf of the client.

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20. The method as recited in claim 19, further comprising the service performing the one or more functions as specified by the plurality of request messages, wherein said performing the one or more functions generates results data.

5 21. The method as recited in claim 20, further comprising sending the results data to the client in one or more response messages in the data representation language.

22. The method as recited in claim 20, further comprising:

10 storing the results data; and

sending a reference to the stored results data to the client in a response message in the data representation language.

15 23. The method as recited in claim 20, further comprising displaying the results data for the client in accordance with the data representation language schema, wherein the data representation language schema further includes information describing display characteristics of the results data.

20 24. The method as recited in claim 23, wherein said receiving a plurality of request messages, said verifying a sequence of the plurality of request messages, said sending the plurality of request messages, and said displaying the results data are performed by a service interface for the client.

25 25. The method as recited in claim 24, wherein a client device comprises the service interface and the client.

26. The method as recited in claim 25, further comprising the service providing the service interface to the client device.

27. The method as recited in claim 24, wherein a service device comprises the service interface and the service.

28. The method as recited in claim 24, further comprising:

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receiving the data representation language schema; and

generating the service interface for the client according to the data representation language schema.

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29. The method as recited in claim 28, further comprising receiving the data representation language schema of the service in a service advertisement of the service.

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30. The method as recited in claim 18, wherein the data representation language is eXtensible Markup Language (XML).

31. A device, comprising:

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a processor;

a memory coupled to said processor;

a message conductor unit configured to:

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receive a first message in a data representation language from a first source to be sent to a destination, wherein the first message is one of an ordered set of messages receivable by the destination and described in a data representation language schema;

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verify a sequence of the first message in the ordered set of messages receivable by the destination according to the data representation language schema;

5 send the first message to the destination if the first message is in sequence;
and

not send the first message to the destination if the first message is not in sequence.

10 32. The device as recited in claim 31, wherein the message conductor unit is further configured to notify the first source if the first message is not in sequence.

15 33. The device as recited in claim 32, wherein the first source is configured to resend the first message in sequence in response to said notifying.

20 34. The device as recited in claim 31, wherein the source is a client process in the distributed computing environment and the destination is a service accessible through the distributed computing environment.

35. The device as recited in claim 34, wherein the device comprises the message conductor and the client process.

25 36. The device as recited in claim 35, wherein the service is configured to provide the message conductor to the device.

37. The device as recited in claim 34, wherein the device comprises the message conductor and the service.

38. The device as recited in claim 31, further comprising a message endpoint, wherein in said sending the first message to the destination, the message conductor is further configured to send the first message to the message endpoint, wherein the message endpoint is configured to send the first message to the destination for the message conductor.

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39. The device as recited in claim 38, wherein the source is a client process in the distributed computing environment and the destination is a service accessible through the distributed computing environment, and wherein the device comprises the message conductor, message endpoint, and client process.

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40. The device as recited in claim 39, wherein the service is configured to provide the message conductor to the device.

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41. The device as recited in claim 31, wherein the destination is a service accessible through the distributed computing environment and configured to provide resources to clients in the distributed computing environment in response to data representation language messages received from the clients, and wherein the first source is a first client of the service in the distributed computing environment.

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42. The device as recited in claim 31, wherein the message conductor is further configured to:

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receive a plurality of messages in the data representation language from a plurality of sources to be sent to the destination, wherein the plurality of messages are each from the ordered set of messages receivable by the destination and described in the data representation language schema;

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verify a sequence of the plurality of messages in the ordered set of messages receivable by the destination according to the data representation language

schema;

send a second message of the plurality of message to the destination if the second message is in sequence; and

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not send the second message to the destination if the second message is not in sequence.

43. The device as recited in claim 31, wherein the source is a client process in the
10 distributed computing environment and the destination is a service accessible through the
distributed computing environment, wherein the device is configured to:

15 receive the data representation language schema, wherein the data representation
language schema defines a message sequence interface for accessing the

service; and

generate the message conductor for the client process according to the data
representation language schema.

20 44. The device as recited in claim 43, wherein the device is further configured to
receive the data representation language schema of the service in a service advertisement
of the service.

25 45. The device as recited in claim 31, wherein the data representation language is
eXtensible Markup Language (XML).

46. A device, comprising:

30 a processor;

a memory coupled to said processor;

a service interface unit configured to:

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receive a plurality of request messages in a data representation language from a first source to be sent to a destination, wherein the plurality of request messages are an ordered set of messages receivable by the destination and described in a data representation language schema;

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verify a sequence of the plurality of request messages receivable by the destination according to the data representation language schema; and

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send the plurality of request messages in sequence to the destination.

47. The device as recited in claim 46, wherein the source is a client process in the distributed computing environment and the destination is a service accessible through the distributed computing environment, wherein the plurality of request messages include information requesting the service to perform one or more functions on behalf of the client process.

48. The device as recited in claim 47, wherein the service is configured to:

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perform the one or more functions as specified by the plurality of request messages; and

generate results data from said performing the one or more functions.

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49. The device as recited in claim 48, wherein the service is further configured to send the results data to the client process in one or more response messages in the data representation language.

5 50. The device as recited in claim 48, wherein the service is further configured to:

store the results data; and

send a reference to the stored results data to the client process in a response
10 message in the data representation language.

51. The device as recited in claim 48, wherein the service interface unit is further configured to display the results data for the client process in accordance with the data representation language schema, wherein the data representation language schema further
15 includes information describing display characteristics of the results data.

52. The device as recited in claim 47, wherein the device comprises the service interface and the client process.

20 53. The device as recited in claim 52, wherein the service is further configured to provide the service interface to the device.

54. The device as recited in claim 47, wherein the device comprises the service interface and the service.

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55. The device as recited in claim 46, wherein the device is further configured to:

receive the data representation language schema; and

generate the service interface for the client according to the data representation language schema.

56. The device as recited in claim 55, wherein the device is further configured to
5 receive the data representation language schema of the service in a service advertisement
of the service.

57. The device as recited in claim 46, wherein the data representation language is
eXtensible Markup Language (XML).

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58. A carrier medium comprising program instructions, wherein the program
instructions are computer-executable to implement:

15 receiving a first message in a data representation language from a first source to
be sent to a destination, wherein the first message is one of an ordered set
of messages receivable by the destination and described in a data
representation language schema;

20 verifying a sequence of the first message in the ordered set of messages receivable
by the destination according to the data representation language schema;

sending the first message to the destination if the first message is in sequence; and

25 not sending the first message to the destination if the first message is not in
sequence.

59. The carrier medium as recited in claim 58, wherein the program instructions are
further computer-executable to implement notifying the first source if the first message is
30 not in sequence.

60. The carrier medium as recited in claim 58, wherein said receiving a first message, said verifying a sequence, and said sending the first message are performed by a message conductor configured to send messages in sequence to the destination according to the
5 data representation language schema.

61. The carrier medium as recited in claim 60, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment, and wherein a client device comprises the message
10 conductor and the client.

62. The carrier medium as recited in claim 60, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment, and wherein a service device comprises the message
15 conductor and the service.

63. The carrier medium as recited in claim 58, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment, wherein said receiving a first message and said
20 verifying a sequence are performed by a message conductor configured to verify the sequence of messages according to the data representation language schema, and wherein said sending the first message is performed by a message endpoint configured to send messages to the service.

25 64. The carrier medium as recited in claim 58, wherein the program instructions are further computer-executable to implement:

receiving a plurality of messages in the data representation language from a plurality of sources to be sent to the destination, wherein the plurality of

messages are each from the ordered set of messages receivable by the destination and described in the data representation language schema;

5 verifying a sequence of the plurality of messages in the ordered set of messages receivable by the destination according to the data representation language schema;

sending a second message of the plurality of message to the destination if the second message is in sequence; and

10 not sending the second message to the destination if the second message is not in sequence.

65. The carrier medium as recited in claim 58, wherein the source is a client in the
15 distributed computing environment and the destination is a service accessible through the distributed computing environment, wherein the program instructions are further computer-executable to implement:

20 receiving the data representation language schema, wherein the data representation language schema defines a message sequence interface for accessing the service; and

25 generating a message conductor for the client according to the data representation language schema, wherein said receiving a first message and said verifying a sequence are performed by the message conductor for the client.

66. The carrier medium as recited in claim 58, wherein the data representation language is eXtensible Markup Language (XML).

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67. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

5 receiving a plurality of request messages in a data representation language from a first source to be sent to a destination, wherein the plurality of request messages are an ordered set of messages receivable by the destination and described in a data representation language schema;

10 verifying a sequence of the plurality of request messages receivable by the destination according to the data representation language schema; and

sending the plurality of request messages in sequence to the destination.

15 68. The carrier medium as recited in claim 67, wherein the source is a client in the distributed computing environment and the destination is a service accessible through the distributed computing environment, wherein the plurality of request messages include information requesting the service to perform one or more functions on behalf of the client.

20 69. The carrier medium as recited in claim 68, wherein the program instructions are further computer-executable to implement the service performing the one or more functions as specified by the plurality of request messages, wherein said performing the one or more functions generates results data.

25 70. The carrier medium as recited in claim 69, wherein the program instructions are further computer-executable to implement displaying the results data for the client in accordance with the data representation language schema, wherein the data representation language schema further includes information describing display characteristics of the results data.

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71. The carrier medium as recited in claim 70, wherein said receiving a plurality of request messages, said verifying a sequence of the plurality of request messages, said sending the plurality of request messages, and said displaying the results data are performed by a service interface for the client.

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72. The carrier medium as recited in claim 71, wherein a client device comprises the service interface and the client.

73. The carrier medium as recited in claim 71, wherein a service device comprises the
10 service interface and the service.

74. The carrier medium as recited in claim 71, wherein the program instructions are further computer-executable to implement:

15 receiving the data representation language schema; and

generating the service interface for the client according to the data representation language schema.

20 75. The carrier medium as recited in claim 67, wherein the data representation language is eXtensible Markup Language (XML).